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Patent vitellointestinal duct with prolapsed (intussusceptions) of proximal and distal ileal loop: A case report

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ABSTRACT

A wide variety of anomalies may occur as a result of the vitellointestinal duct (VID) failing to obliterate completely. VID is well known because of its various complication and presentation most commonly due to Meckel's diverticulum. Small bowel prolapsed through patent VID is one of the rare presentations that have been reported. We are reporting a case of patent VID through which proximal and distal ileal segment had been intussuscepted and prolapsed through umbilicus.

The midgut enlarges rapidly during the first 5 weeks of gestation and it is herniated into the umbilical cord. The apex of the herniated midgut is continuous with the vitellointestinal duct and the yolk sac [1,2]. At approximately the 10th week of gestation, the midgut begins its return into the abdominal cavity. This return occurs by a highly complex developmental process, and as a result, numerous anomalies of the bowel may ensue. These include bowel atresias, failure of ceacal descent, malrotation, exomphalos, patent VID and most commonly Meckel's diverticulum [1–3].

We are presenting a case of patent vitellointestinal duct with intussuscepted and prolapsed proximal and distal ileal loop through the umbilical defect.

1. Case presentation

A 23 day old male baby presented with history of fecal discharge from an opening at umbilicus since 7 days (Fig. 1). He was passing normal stool per rectally. He was moderately dehydrated with failure to gain weight. He was admitted and contrast study through umbilical opening was planned. But within 2 h of admission, patient had vomiting, excessive crying and bowel loop coming out through umbilical defect (Fig. 2).

On careful examination we found that the loop was the 'y' shaped fork, one of the tips of the mass was discharging sticky greenish fluids suggestive of intestinal juices. The intestinal loop was protruding from umbilicus and fixed to the anterior abdominal wall (Fig. 2). The loop was irreducible and bled on touch suggestive of mucosal surface. On examination abdomen was distended, prolapsed bowel loop was dusky red in color, tender and non reducible. Bowel sound was obstructive.

The baby was prepared for urgent laparotomy under general anesthesia. The abdomen was opened through transverse incision (3.5 cm) at and encircling the umbilicus. The prolapsed bowel loop was separated from the abdominal wall by fine dissection. The prolapsed bowel loops were intussuscepted proximal and distal ileal segment through patent VID. After complete reduction, a defect of 1 × 1 cm was found in the small intestine at the point of adherence with umbilicus suggesting its communication with external environment (Fig. 3).

The intussusceptions of proximal and distal ileal loop were reduced slowly but around 8 cm of ileal segment around and including patent VID was dusky and necrotic. Whole necrotic segment with VID was resected (Fig. 4) and ileo-ileal end to end anastomosis was done. The defect of Patent VID over the abdominal wall was reconstructed as umbilicus (umboplasty). The baby was allowed orally from 5th day and discharged on seventh day. Patient is asymptomatic at 3 month follow up.

2. Discussion

Vitellointestinal or omphalomesenteric duct normally connects the primitive gut to the yolk sac usually obliterate around the seventh or eighth week of gestation. Failure of obliteration of the embryonic VID leads to various congenital anomalies like – Meckel's diverticulum, vitelline cord, umbilical sinus, enteric fistula or hemorrhagic umbilical mass [1,2,4]. Totally patent VID is a very

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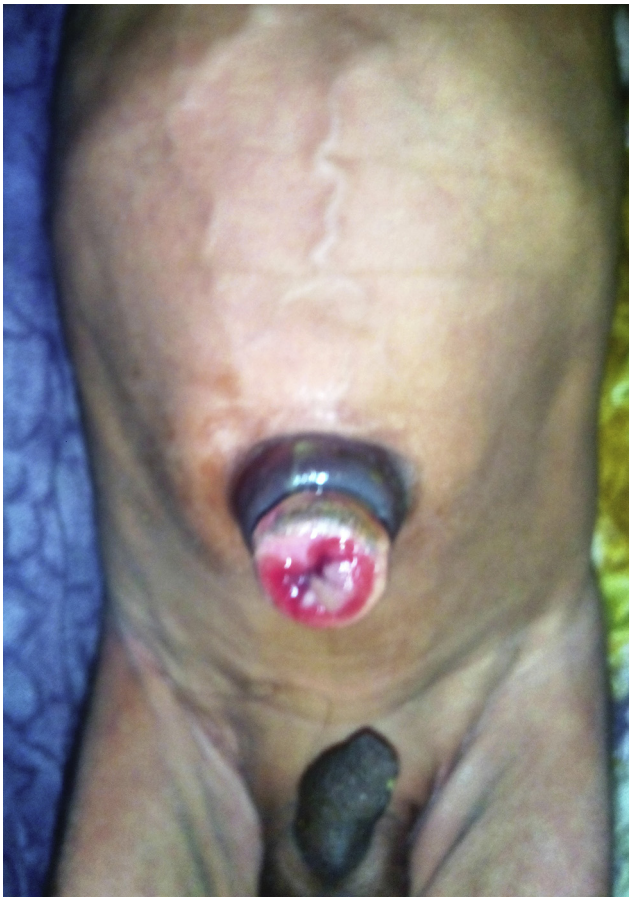

Fig. 1. Picture on presentation.

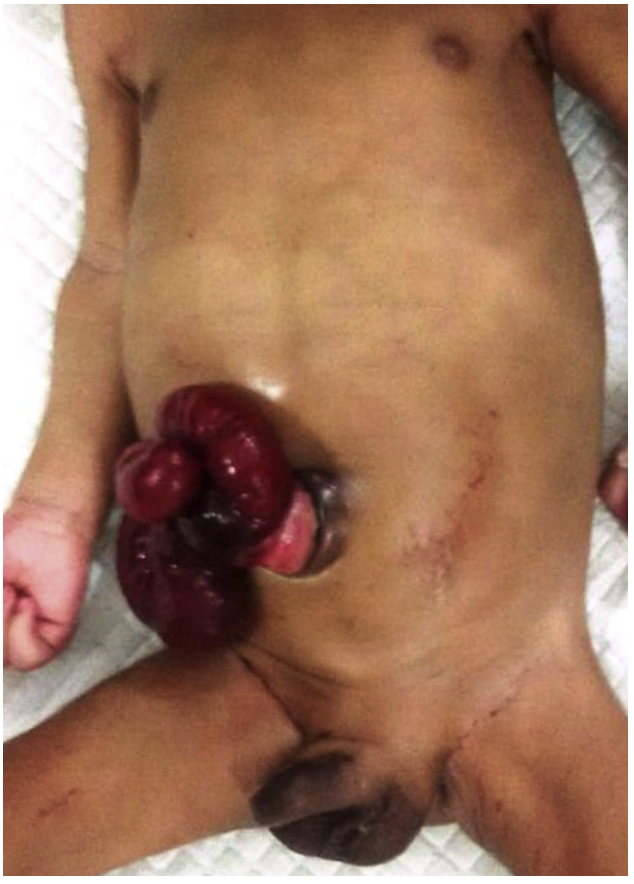

Fig. 2. Prolapsed bowel loop at the time of surgery.

rare anomaly. We found few case reports of ileal prolapse through the patent VID [1,2,5]. Double intussusception of the small bowel through a patent VID is very rare entity and we found only two case reports in the literature by Mustafa R in 1976 [6] and Benson JM in1992 [7]. Meckel's diverticulum has a 4 to 6 percent lifetime risk of developing a complication. Of these 13.7% present as intussusception, this often presents as obstruction. Intussusceptions described above are inversion of Meckel's diverticulum in to the ileum which is most common type of intussusception involving VID [2,8].

Patent VID may present itself as continuous or intermittent discharge through the umbilicus. The defect which is wide enough which may leads to partial or total prolapse of the intestine through the patent duct. Double intussusception may lead to intestinal obstruction, strangulation and gangrene of the prolapsed intestinal loop [1]. Hence surgical intervention is necessary as emergency. During surgery options available are: 1) Primary closure of the VID following reduction of the prolapse (if the patient arrives early without any gross edema over the intestinal loops) 2) Resection of the loop of intestine near the patent duct followed by primary anastomosis (If the defect is large and bowel is healthy). 3) Exteriorization of the suspected loop or loop ileostomy (If the patient arrives late with the viability of the intestinal loops is in question) [1,2].

In our case mouth of the duct was wider and the length of the duct was shorter similar finding to previous cases. The distance between VID and ileocaecal valve is lesser in infants leading to higher intraluminal pressure causing double intussusception. Hence we can conclude that wider mouth and shorter duct may facilitate the intussusception (in the presence of increased intraluminal pressure) [1,2,9].

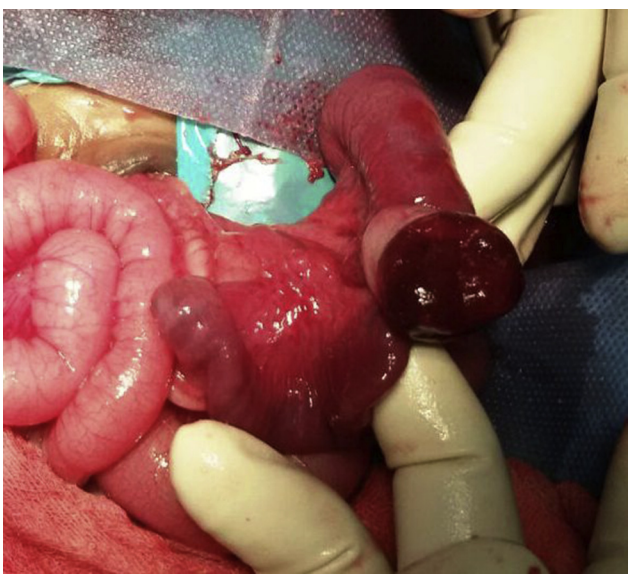

Fig. 3. Picture on reduction of prolapse.

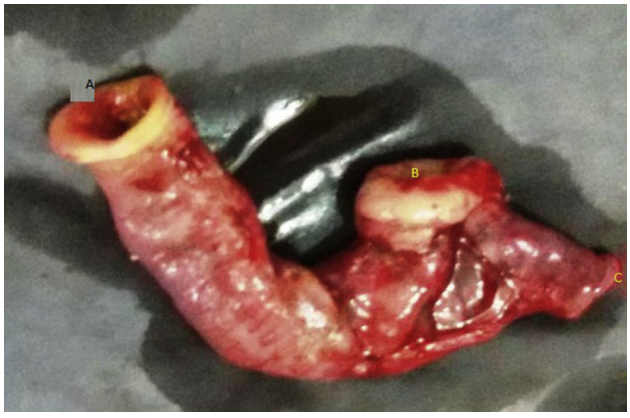

Fig. 4. Resected specimen. A) Proximal loop, B) Patent VID, C) Distal loop.

Early diagnosis and reduction is ideal treatment. In our case ileum was dusky and necrotic leading to resection and primary ileaoileal anastomosis.

3. Conclusion

Patent VID with intussusception of double ileal loop is a rare condition needs prompt diagnosis, surgical intervention and repair of the defect.

Acknowledgment

Permission for the publishing of the case report is taken from the patients parents.

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